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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/590,121	LI ET AL.
	Examiner	**Art Unit**	
	Paul Masur	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>18 August 2006</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-21</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-21</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>18 August 2006</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All   b) ☐ Some * c) ☐ None of:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____.
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>03/05/2007 & 07/02/2007</u>.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   **Figure 1 should be designated by a legend such as --Prior Art-- because
only that which is old is illustrated.** See MPEP § 608.02(g). Corrected drawings in
compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid
abandonment of the application. The replacement sheet(s) should be labeled
"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct
any portion of the drawing figures. If the changes are not accepted by the examiner, the
applicant will be notified and informed of any required corrective action in the next Office
action. The objection to the drawings will not be held in abeyance.

Claim Objections

2.   **Claim 5 is objected to because of the following informalities:** "…according
to a MAC layer label and the a pre-configured forwarding table" should read "according
to a MAC layer label and ~~the~~ a pre-configured forwarding table".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102
that form the basis for the rejections under this section made in this Office
action:**

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

4.   Claims 11, 12, 15, 16, 18, and 20 are rejected under 35 U.S.C. 102(b) as

being anticipated by Tagore-Brage et al. (US PG Pub 2002/0075886).

5.   **As per claim 11,** Tagore-Brage et al. teach a device for transmitting Ethernet

service signals in a Wavelength Division Multiplexing (WDM) network, comprising:

transmitting/receiving modules, which connect to transmission channels in the

WDM network [Tagore-Brage, paragraph 0032, "Normally, the data will conform to a

standard, such as the Ethernet standard", Each switch operates using the Ethernet

protocol.];

a local service processing part, which connects to a user side [Tagore-Brage, fig.

1, elements 26 & 28, paragraph 0166, "The external communication is illustrated as

inward and outward facing arrows 26 and 28 from each device 14, 16, 18 and 20", The

external communications are for the user side.]; and

a space-division cross module, connected with the transmitting/receiving module

and the local service processing part, and is used for performing a space-division cross

operation upon the Ethernet service signals and duplicating the Ethernet service signals

[Tagore-Brage, paragraph 0004, "The space division switch allows the designer of the

switch to reduce the number of total cross-points required in implementing a crossbar

matrix switch. However, the head of line blocking may be further increased since more

cross-points will be shared", Each switch has a space-division cross switch.];

wherein, the Ethernet service signals at network side received by

transmitting/receiving module are duplicated by the space-division cross module into

two copies, wherein one copy is transmitted to the local service processing part and the

other copy is returned to the network side for continuous transmission [Tagore-Brage,

paragraph 0024, "determine, at least substantially simultaneously in each device having

received at least part of a data packet, on the basis of the pertaining receiving device

information, whether the at least part of the data packet is intended for the device and, if

so, storing a copy of the at least part of the data packet in the device", A copy of the

packet is stored locally at the device.].

6.   **As per claim 12,** Tagore-Brage et al. teach the device according to claim 11,

wherein, the local service processing part comprises a Media Access Control (MAC)

layer and a physical layer, wherein, the MAC layer connects to the space-division cross

module and the physical layer, selects the services that belong to the present station

and to receive according to MAC layer labels, and discards other services [Tagore-

Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage

mapping external receiver addresses (such as MAC addresses or IP addresses) to

internal receiving device identities--the devices via which the data packet may, in fact,

reach its destination", A table of MAC addresses stores the units (or services) that are

allowed to communicate.].

7.   **As per claim 15,** Tagore-Brage et al. teach a device for processing Ethernet

service signals in a Wavelength Division Multiplexing (WDM) network, comprising:

         a transmitting/receiving module, which connects to transmission channels of the

WDM network [Tagore-Brage, paragraph 0032, "Normally, the data will conform to a

standard, such as the Ethernet standard", Each switch operates using the Ethernet

protocol.];

a Media Access Control (MAC) layer that connects a user side [Tagore-Brage,

paragraph 0033, "the communication will conform to a standard, and e.g. a MAC may

be present at the port in order to define and conform to this standard. The port may be

adapted to communicate on any type of communication medium, such as twisted pair

conductors, coaxial conductors, optical fibres, wireless communication etc", The MAC

layer is connected to the physical layer, which is used for communication. & fig. 1,

elements 26 & 28, paragraph 0166, "The external communication is illustrated as inward

and outward facing arrows 26 and 28 from each device 14, 16, 18 and 20", The external

communications are for the user side.]; and

a space-division cross module, connected with the transmitting/receiving

modules and the MAC layer, and is used for performing a space-division cross

operation upon the Ethernet service signals [Tagore-Brage, paragraph 0004, "The

space division switch allows the designer of the switch to reduce the number of total

cross-points required in implementing a crossbar matrix switch. However, the head of

line blocking may be further increased since more cross-points will be shared", Each

switch has a space-division cross switch.];

wherein, the MAC layer is used for duplicating the Ethernet service signals from

the space-division cross module into two copies, wherein one copy is transmitted to a

local station while the other copy is returned to the transmission channel of the WDM

network through the space-division cross module and transmitting/receiving module

[Tagore-Brage, paragraph 0024, "determine, at least substantially simultaneously in

each device having received at least part of a data packet, on the basis of the pertaining

receiving device information, whether the at least part of the data packet is intended for

the device and, if so, storing a copy of the at least part of the data packet in the device",

A copy of the packet is stored locally at the device.].

8.   **As per claim 16,** Tagore-Brage et al. teach the device according to claim 15,

wherein, the MAC layer is further used for selecting service signals that belong to the

present station to receive according to MAC layer labels in the Ethernet service signals,

and discarding other service signals from the space-division cross module which do not

belong to the present station [Tagore-Brage, Paragraph 0162, "The LU-engine

comprises a table or other data storage mapping external receiver addresses (such as

MAC addresses or IP addresses) to internal receiving device identities--the devices via

which the data packet may, in fact, reach its destination", A table of MAC addresses

stores the units (or services) that are allowed to communicate.].

9.   **As per claim 18,** Tagore-Brage et al. teach a device for processing Ethernet

service signals in a Wavelength Division Multiplexing (WDM) network, comprising:

        a transmitting/receiving module, which connects to transmission channels in the

WDM network [Tagore-Brage, paragraph 0032, "Normally, the data will conform to a

standard, such as the Ethernet standard", Each switch operates using the Ethernet

protocol.];

        a local service processing part that connects the a user side [Tagore-Brage, fig.

1, elements 26 & 28, paragraph 0166, "The external communication is illustrated as

inward and outward facing arrows 26 and 28 from each device 14, 16, 18 and 20", The

external communications are for the user side.]; and

a space-division cross module, connected with the transmitting/receiving module

and the network identifier module, and is used for performing a space-division cross

operation upon the Ethernet service signals [Tagore-Brage, paragraph 0004, "The

space division switch allows the designer of the switch to reduce the number of total

cross-points required in implementing a crossbar matrix switch. However, the head of

line blocking may be further increased since more cross-points will be shared", Each

switch has a space-division cross switch.];

a network identifier module, which is used for duplicating the Ethernet service

signals into two copies, removing the identifier of one copy and sending the signals to

the local service processing part, and returning the other copy to the transmission

channel of the WDM network through the space-division cross module and

transmitting/receiving modules for continuous transmission [Tagore-Brage, paragraph

0024, "determine, at least substantially simultaneously in each device having received

at least part of a data packet, on the basis of the pertaining receiving device information,

whether the at least part of the data packet is intended for the device and, if so, storing

a copy of the at least part of the data packet in the device", A copy of the packet is

stored locally at the device.].

10.   **As per claim 20,** Tagore-Brage et al. teach the device according to claim 18,

wherein, the local service processing part comprises a MAC layer and a physical layer,

wherein,

the MAC layer receives the Ethernet service signals from the network identifier

module, selects the services that belong to the present station to receive according to

MAC layer labels in the Ethernet service signals and discarding other services [Tagore-

Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage

mapping external receiver addresses (such as MAC addresses or IP addresses) to

internal receiving device identities--the devices via which the data packet may, in fact,

reach its destination", A table of MAC addresses stores the units (or services) that are

allowed to communicate.].

Claim Rejections - 35 USC § 103

11.   **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for**

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

12.   **Claims 1-7, 14, 17, and 21 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Tagore-Brage et al. (US PG Pub 2002/0075886) in view of

Chapman et al. (2003/0103450).

13.   **As per claim 1,** Tagore-Brage et al. teach a method for transmitting Ethernet

service signals in a Wavelength Division Multiplexing (WDM) network, comprising... a

receiving station receiving the Ethernet service signals [Tagore-Brage, paragraph 0032,

"Normally, the data will conform to a standard, such as the Ethernet standard", Each

switch operates using the Ethernet protocol.] from the transmitting channel, performing

a space-division cross operation upon the received signals and duplicating the signals

into two copies [Tagore-Brage, paragraph 0004, "The space division switch allows the

designer of the switch to reduce the number of total cross-points required in

implementing a crossbar matrix switch. However, the head of line blocking may be

further increased since more cross-points will be shared", Each switch has a space-

division cross switch.], wherein one copy is locally downloaded and the other copy is

returned to the transmission channel for continuous transmission [Tagore-Brage,

paragraph 0024, "determine, at least substantially simultaneously in each device having

received at least part of a data packet, on the basis of the pertaining receiving device

information, whether the at least part of the data packet is intended for the device and, if

so, storing a copy of the at least part of the data packet in the device", A copy of the

packet is stored locally at the device.].

Tagore-Brage et al. do not teach a Center Server (CS) receiving the Ethernet

service signals and transmitting the signals to a transmission channel for transmission.

However, Chapman et al. teach a Center Server (CS) receiving the Ethernet

service signals and transmitting the signals to a transmission channel for transmission

[Chapman, paragraphs 0092 & 0093, "The controller may consist in a single central

controller for the entire switch or, alternatively, may consist in a distributed control

system with local controllers for each input port and, possibly, a separate fabric

controller for the switch fabric. The input/output torts interconnect the switch to users,

other switches and other network elements. Data units, such as IP data packets,

received as inputs are defined as ingress, while data units transmitted as outputs are

defined as egress. The switch controller, either a central or distributed system, provides

for the packet forwarding control, as well as the internal management of the switch,

specifically the traffic scheduling and coordination within the switch fabric", The central

server (or switch) operates within a distributed system.];

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Chapman et al. into Tagore-Brage et

al., since Tagore-Brage suggest a space-division cross switch within a distributed

network, and Chapman et al. suggest a central IP switch such as to provide space-

division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in

the analogous art of space-division switching.

14.   **As per claim 2,** Tagore-Brage et al. in view of Chapman et al. teach the method

according to claim 1. Tagore-Brage et al. also teach wherein…each receiving station

receives the Ethernet service signals from any direction of the transmission channel or

from both directions of the transmission channel simultaneously [Tagore-Brage,

paragraph 0037, "the interconnecting means and transporting means comprise a

plurality of parallel connections between the devices, such as where a first number of

the parallel connections are adapted to transport the at least part of the data packets

between the devices and where a second number of the parallel connections are

adapted to transport the pertaining receiving device information between the devices",

Parallel connections imply bi-directional transmission.].

Tagore-Brage et al. do not teach the CS transmits the Ethernet service signals in

any direction of the transmission channel or in both directions of the transmission

channel simultaneously.

However, Chapman et al. teach the CS transmits the Ethernet service signals in any direction of the transmission channel or in both directions of the transmission channel simultaneously [Chapman, paragraphs 0092 & 0093, "The controller may consist in a single central controller for the entire switch or, alternatively, may consist in a distributed control system with local controllers for each input port and, possibly, a separate fabric controller for the switch fabric. The input/output torts interconnect the switch to users, other switches and other network elements. Data units, such as IP data packets, received as inputs are defined as ingress, while data units transmitted as outputs are defined as egress. The switch controller, either a central or distributed system, provides for the packet forwarding control, as well as the internal management of the switch, specifically the traffic scheduling and coordination within the switch fabric", The central server (or switch) operates within a distributed system.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a central IP switch such as to provide space-division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in the analogous art of space-division switching.

15.   **As per claim 3,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 2. Tagore-Brage et al. also teach further comprising:

each station implementing a protection switch by switching the directions of receiving and transmitting the Ethernet service signals [Tagore-Brage, Paragraph 0162,

"The LU-engine comprises a table or other data storage mapping external receiver

addresses (such as MAC addresses or IP addresses) to internal receiving device

identities--the devices via which the data packet may, in fact, reach its destination", A

table of MAC addresses stores the units (or services) that are allowed to

communicate.].

16.   **As per claim 4,** Tagore-Brage et al. in view of Chapman et al. teach the method

according to claim 1. Tagore-Brage et al. also teach wherein, the step of duplicating is

implemented by a space-division cross module [Tagore-Brage, paragraphs 0014 &

0024, "In a first aspect, the invention relates to a switching unit for switching a data

packet, the switching unit comprising:… determine, at least substantially simultaneously

in each device having received at least part of a data packet, on the basis of the

pertaining receiving device information, whether the at least part of the data packet is

intended for the device and, if so, storing a copy of the at least part of the data packet in

the device", A copy of the packet is stored locally at the device.].

17.   **As per claim 5,** Tagore-Brage et al. in view of Chapman et al. teach the method

according to claim 1. Tagore-Brage et al. also teach wherein, the duplication is

implemented by a Media Access Control (MAC) layer according to a MAC layer label

and the a pre-configured forwarding table [Tagore-Brage, Paragraph 0162, "The LU-

engine comprises a table or other data storage mapping external receiver addresses

(such as MAC addresses or IP addresses) to internal receiving device identities--the

devices via which the data packet may, in fact, reach its destination", A table of MAC

addresses stores the units (or services) that are allowed to communicate.], or the step

of duplicating is implemented by a network identifier module according to a self-defined

identifier added to the Ethernet service signals and the pre-configured forwarding table.

18.   **As per claim 6,** Tagore-Brage et al. in view of Chapman et al. teach the method

according to claim 1. Tagore-Brage et al. also teach further comprising...determining

that the Ethernet service signals carry different MAC layer labels respectively; informing

the receiving station of the MAC layer labels carried in each Ethernet service signal;

and transmitting the multiple Ethernet service signals to the transmission channel

[Tagore-Brage, fig. 1, element 16, paragraph 0161, "The switching unit 10 comprises a

crossbar 12 directing the data packets 11 received at any of the connected devices 14,

16, 18 or 20 to any or all of the connected devices 14, 16, 18 or 20; a lookup engine 22

(LU-engine) determining which of the devices 14, 16, 18 and/or 20 should receive the

data packet 11; and an arbiter 24 determining from control information received from the

LU-engine which of the devices 14, 16, 18 and/or 20 are to transmit and receive data

packets 11 on the crossbar 12", The LU-engine works using MAC and IP addresses and

handles their transmission and reception from the channel.]; and

         the receiving stations receiving the multiple Ethernet service signals, selecting

the signals belonging to the present station from the locally downloaded multiple

Ethernet service signals to receive and discarding signals not belonging to the present

station according to the MAC layer labels [Tagore-Brage, Paragraph 0162, "The LU-

engine comprises a table or other data storage mapping external receiver addresses

(such as MAC addresses or IP addresses) to internal receiving device identities--the

devices via which the data packet may, in fact, reach its destination", A table of MAC

addresses stores the units (or services) that are allowed to communicate.].

Tagore-Brage et al. do not teach when the CS receives multiple Ethernet service

signals at the same time. However, Chapman et al. teach when the CS receives

multiple Ethernet service signals at the same time [Chapman, paragraphs 0092 & 0093,

"The controller may consist in a single central controller for the entire switch or,

alternatively, may consist in a distributed control system with local controllers for each

input port and, possibly, a separate fabric controller for the switch fabric. The

input/output torts interconnect the switch to users, other switches and other network

elements. Data units, such as IP data packets, received as inputs are defined as

ingress, while data units transmitted as outputs are defined as egress. The switch

controller, either a central or distributed system, provides for the packet forwarding

control, as well as the internal management of the switch, specifically the traffic

scheduling and coordination within the switch fabric", The central server (or switch)

operates within a distributed system.].

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Chapman et al. into Tagore-Brage et

al., since Tagore-Brage suggest a space-division cross switch within a distributed

network, and Chapman et al. suggest a central IP switch such as to provide space-

division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in

the analogous art of space-division switching.

19.   **As per claim 7,** Tagore-Brage et al. in view of Chapman et al. teach the method

according to claim 2. Tagore-Brage et al. teach further comprising… determining that

the Ethernet service signals carry different MAC layer labels respectively; informing the

receiving station of the MAC layer labels carried in each Ethernet service signal; and

transmitting the multiple Ethernet service signals to the transmission channel for

transmission [Tagore-Brage, fig. 1, element 16, paragraph 0161, "The switching unit 10

comprises a crossbar 12 directing the data packets 11 received at any of the connected

devices 14, 16, 18 or 20 to any or all of the connected devices 14, 16, 18 or 20; a

lookup engine 22 (LU-engine) determining which of the devices 14, 16, 18 and/or 20

should receive the data packet 11; and an arbiter 24 determining from control

information received from the LU-engine which of the devices 14, 16, 18 and/or 20 are

to transmit and receive data packets 11 on the crossbar 12", The LU-engine works

using MAC and IP addresses and handles their transmission and reception from the

channel.]; and

        the receiving stations receiving the multiple Ethernet service signals, selecting

the signals belonging to the present station from the locally downloaded multiple

Ethernet service signals to receive and discarding signals not belonging to the present

station according to the MAC layer labels [Tagore-Brage, Paragraph 0162, "The LU-

engine comprises a table or other data storage mapping external receiver addresses

(such as MAC addresses or IP addresses) to internal receiving device identities--the

devices via which the data packet may, in fact, reach its destination", A table of MAC

addresses stores the units (or services) that are allowed to communicate.].

Tagore-Brage et al. do not teach when the CS receives multiple Ethernet service signals at the same time. However, Chapman et al. teach when the CS receives multiple Ethernet service signals at the same time [Chapman, paragraphs 0092 & 0093, "The controller may consist in a single central controller for the entire switch or, alternatively, may consist in a distributed control system with local controllers for each input port and, possibly, a separate fabric controller for the switch fabric. The input/output torts interconnect the switch to users, other switches and other network elements. Data units, such as IP data packets, received as inputs are defined as ingress, while data units transmitted as outputs are defined as egress. The switch controller, either a central or distributed system, provides for the packet forwarding control, as well as the internal management of the switch, specifically the traffic scheduling and coordination within the switch fabric", The central server (or switch) operates within a distributed system.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a central IP switch such as to provide space-division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in the analogous art of space-division switching.

20.   **As per claim 14,** Tagore-Brage et al. teach the device according to claim 11. Tagore-Brage et al. do not teach further comprising: an Ethernet service signal

encapsulation module and a mapping/framing module, which connect to the cross

module and the transmitting/receiving modules.

However, Chapman et al. teach an Ethernet service signal encapsulation module

and a mapping/framing module, which connect to the cross module and the

transmitting/receiving modules [Chapman, paragraph 0122, "if interface 202 forwards an

IP data packet to the interface 204, the IP data packet is encapsulated in a data block

frame and the data block transmitted to the interface 204. The encapsulation process

consists of appending at the interface 202 to the IP data packet the necessary

information fields, such as the source and destination address fields", Encapsulation

occurs at the cross-switch.].

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Chapman et al. into Tagore-Brage et

al., since Tagore-Brage suggest a space-division cross switch within a distributed

network, and Chapman et al. suggest a switch such as to provide IP encapsulation

within a distributed network [Chapman, paragraph 0122] in the analogous art of space-

division switching.

21.   **As per claim 17,** Tagore-Brage et al. teach the device according to claim 15.

Tagore-Brage et al. do not teach further comprising: an Ethernet service signals

encapsulation module, a happing/framing module, which connect the cross module and

the transmitting/receiving module

However, Chapman et al. teach an Ethernet service signals encapsulation

module, a happing/framing module, which connect the cross module and the

transmitting/receiving module [Chapman, paragraph 0122, "if interface 202 forwards an IP data packet to the interface 204, the IP data packet is encapsulated in a data block frame and the data block transmitted to the interface 204. The encapsulation process consists of appending at the interface 202 to the IP data packet the necessary information fields, such as the source and destination address fields", Encapsulation occurs at the cross-switch.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a switch such as to provide IP encapsulation within a distributed network [Chapman, paragraph 0122] in the analogous art of space-division switching.

22.   **As per claim 21,** Tagore-Brage et al. teach the device according to claim 18. Tagore-Brage et al. do not teach further comprising:

However, Chapman et al. teach an Ethernet service signal encapsulation module, and a mapping/framing module, which connects the cross module and the transmitting/receiving modules [Chapman, paragraph 0122, "if interface 202 forwards an IP data packet to the interface 204, the IP data packet is encapsulated in a data block frame and the data block transmitted to the interface 204. The encapsulation process consists of appending at the interface 202 to the IP data packet the necessary information fields, such as the source and destination address fields", Encapsulation occurs at the cross-switch.].

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Chapman et al. into Tagore-Brage et

al., since Tagore-Brage suggest a space-division cross switch within a distributed

network, and Chapman et al. suggest a switch such as to provide IP encapsulation

within a distributed network [Chapman, paragraph 0122] in the analogous art of space-

division switching.

23.   Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tagore-Brage et al. (US PG Pub 2002/0075886) in view of Chapman et al.

(2003/0103450) and Suemura (US PG Pub 2003/0145246).

24.   **As per claim 8,** Tagore-Bare et al. in view of Chapman et al. teach the method

according to claim 6. Tagore-Bare et al. do not teach wherein: the MAC layer label is a

Virtual Local Area Network (VLAN) label, or a Multiple-Protocol Label Switching (MPLS)

label or a Resilient Packet Ring (RPR) label.

However, Suemura teaches wherein: the MAC layer label is a Virtual Local Area

Network (VLAN) label, or a Multiple-Protocol Label Switching (MPLS) label or a

Resilient Packet Ring (RPR) label [Suemura, paragraphs 0007 & 0049, "the recent

tendency is toward integrating the control plane of MPLS (multi-protocol label switching)

technology with SDH/SONET transport networks" & "As illustrated in FIG. 1 as a

representative node, the node B includes a cross-connect switch 2 which may be a

combination of one or more time division switching stages and one or more space

division switching stages", The space-division switch works in a MPLS network.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suemura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Suemura suggests the beneficial use of a space division switch such as to perform MPLS transmission [Suemura, paragraphs 0007 & 0049] in the analogous art of space-division switching.

25.   **As per claim 9,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 1. Tagore-Bare et al. do not teach further comprising: when the CS receives multiple Ethernet service signals at the same time, the CS adding an identifier of the station that receives the service signals into each Ethernet service signal; correspondingly informing each receiving station of the identifier; and transmitting the multiple Ethernet service signals to the transmission channel for transmission; the receiving station receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding the signals not belonging to the present station according to the identifier information; and peeling the identifier information from the signals of the present station.

However, Suemura teaches when the CS receives multiple Ethernet service signals at the same time, the CS adding an identifier of the station that receives the service signals into each Ethernet service signal; correspondingly informing each receiving station of the identifier; and transmitting the multiple Ethernet service signals to the transmission channel for transmission [Suemura, paragraphs 0007 & 0049, "the

recent tendency is toward integrating the control plane of MPLS (multi-protocol label switching) technology with SDH/SONET transport networks" & "As illustrated in FIG. 1 as a representative node, the node B includes a cross-connect switch 2 which may be a combination of one or more time division switching stages and one or more space division switching stages", The space-division switch works in a MPLS network.];

the receiving station receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding the signals not belonging to the present station according to the identifier information; and peeling the identifier information from the signals of the present station [Suemura, paragraph 0060, "Each path table entry, which is identified by a path ID field 21, is divided into fields 22 through 33 for setting the values of a virtual link interface ID, bandwidth, upstream node ID, upstream interface ID, upstream label, downstream node ID, downstream interface ID, downstream label, path recovery type, activity (active or inactive), accommodated path and tunnel ID (which is only used for distributed network). As will be described later, the attribute data of the path table 7 are used for setting the switch table 8 with data necessary for the controller 5 to perform switching on the incoming SDH signals transported on a WDM channel", Identifiers (or labels) are placed on or peeled off in accordance with either transmission or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suemura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network,

and Suemura suggests the beneficial use of a space division switch such as to perform

MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of

space-division switching.

26.   **As per claim 10,** Tagore-Brage et al. in view of Chapman et al. teach the

method according to claim 2. Tagore-Bare et al. do not teach further comprising: when

the CS receives multiple Ethernet service signals at the same time:

the CS adding the identifier of the station that receives the service signals into

each Ethernet service signal; correspondingly informing each receiving station of the

identifier; and transmitting the multiple Ethernet service signals to the transmission

channel for transmission; the receiving station receiving the multiple Ethernet service

signals, selecting the signals belonging to the present station from the locally

downloaded multiple Ethernet service signals to receive and discarding the signals not

belonging to the present station according to the identifier information; and peeling the

identifier information from the signals of the present station.

However, Suemura teaches when the CS receives multiple Ethernet service

signals at the same time:

the CS adding the identifier of the station that receives the service signals into

each Ethernet service signal; correspondingly informing each receiving station of the

identifier; and transmitting the multiple Ethernet service signals to the transmission

channel for transmission [Suemura, paragraphs 0007 & 0049, "the recent tendency is

toward integrating the control plane of MPLS (multi-protocol label switching) technology

with SDH/SONET transport networks" & "As illustrated in FIG. 1 as a representative

node, the node B includes a cross-connect switch 2 which may be a combination of one

or more time division switching stages and one or more space division switching

stages", The space-division switch works in a MPLS network.];

the receiving station receiving the multiple Ethernet service signals, selecting the

signals belonging to the present station from the locally downloaded multiple Ethernet

service signals to receive and discarding the signals not belonging to the present station

according to the identifier information; and peeling the identifier information from the

signals of the present station [Suemura, paragraph 0060, "Each path table entry, which

is identified by a path ID field 21, is divided into fields 22 through 33 for setting the

values of a virtual link interface ID, bandwidth, upstream node ID, upstream interface ID,

upstream label, downstream node ID, downstream interface ID, downstream label, path

recovery type, activity (active or inactive), accommodated path and tunnel ID (which is

only used for distributed network). As will be described later, the attribute data of the

path table 7 are used for setting the switch table 8 with data necessary for the controller

5 to perform switching on the incoming SDH signals transported on a WDM channel",

Identifiers (or labels) are placed on or peeled off in accordance with either transmission

or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Suremura into Tagore-Brage et al.,

since Tagore-Brage suggest a space-division cross switch within a distributed network,

and Suemura suggests the beneficial use of a space division switch such as to perform

MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of

space-division switching.

27.   **Claims 13 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable**

over Tagore-Brage et al. (US PG Pub 2002/0075886) in view of Suemura (US PG

Pub 2003/0145246).

28.   **As per claim 13,** Tagore-Brage et al. in view of Chapman et al. teach the device

according to claim 11. Tagore-Bare et al. do not teach further comprising: a network

identifier module, connected with the space-division cross module and the local service

processing part, and is used for adding identifiers to the Ethernet service signals,

selecting services that belong to the present station to receive according to the added

identifiers, and peeling identifier information of the Ethernet service signals that belong

to the present station.

However, Suemura teaches a network identifier module, connected with the

space-division cross module and the local service processing part, and is used for

adding identifiers to the Ethernet service signals, selecting services that belong to the

present station to receive according to the added identifiers, and peeling identifier

information of the Ethernet service signals that belong to the present station [Suemura,

paragraph 0060, "Each path table entry, which is identified by a path ID field 21, is

divided into fields 22 through 33 for setting the values of a virtual link interface ID,

bandwidth, upstream node ID, upstream interface ID, upstream label, downstream node

ID, downstream interface ID, downstream label, path recovery type, activity (active or

inactive), accommodated path and tunnel ID (which is only used for distributed

network). As will be described later, the attribute data of the path table 7 are used for

setting the switch table 8 with data necessary for the controller 5 to perform switching

on the incoming SDH signals transported on a WDM channel", Identifiers (or labels) are

placed on or peeled off in accordance with either transmission or reception,

respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Suremura into Tagore-Brage et al.,

since Tagore-Brage suggest a space-division cross switch within a distributed network,

and Suemura suggests the beneficial use of a space division switch such as to perform

MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of

space-division switching.

29.   **As per claim 19,** Tagore-Brage et al. in view of Chapman et al. teach the device

according to claim 18. Tagore-Bare et al. do not teach wherein, the network identifier

module is further used for selecting services that belong to the present station according

to self-defined identifiers of the service signals, peeling the identifiers and transmitting

the signals to the local service processing part.

However, Suemura teaches wherein, the network identifier module is further

used for selecting services that belong to the present station according to self-defined

identifiers of the service signals, peeling the identifiers and transmitting the signals to

the local service processing part [Suemura, paragraph 0060, "Each path table entry,

which is identified by a path ID field 21, is divided into fields 22 through 33 for setting

the values of a virtual link interface ID, bandwidth, upstream node ID, upstream

interface ID, upstream label, downstream node ID, downstream interface ID,

downstream label, path recovery type, activity (active or inactive), accommodated path

and tunnel ID (which is only used for distributed network). As will be described later, the

attribute data of the path table 7 are used for setting the switch table 8 with data

necessary for the controller 5 to perform switching on the incoming SDH signals

transported on a WDM channel", Identifiers (or labels) are placed on or peeled off in

accordance with either transmission or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement the teachings of Suremura into Tagore-Brage et al.,

since Tagore-Brage suggest a space-division cross switch within a distributed network,

and Suemura suggests the beneficial use of a space division switch such as to perform

MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of

space-division switching.

Conclusion

30.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The reference, Schafer et al. (US PG Pub 20060251418), teaches a space-

division switch operating within a WDM network.

The reference, Huber et al. (US Patent No. 6,005,698), teaches a space-division

module at the center of a WDM network.

31.   **The Examiner has cited particular columns and line numbers or paragraphs**

in the references applied to the claims above for the convenience of the

applicant. Although the specified citations are representative of the teachings of the art

and are applied to specific limitations within the individual claim, other passages and

figures may apply as well. It is respectfully requested from the applicant in preparing

responses, to fully consider the references in their entirety as potentially teaching all or

part of the claimed invention, as well as the context of the passage as taught by the

prior art or disclosed by the Examiner.

In the case of amending the claimed invention, the Applicant is respectfully

requested to indicate the portion(s) of the specification which dictate(s) the structure

relied on for proper interpretation and also to verify and ascertain the metes and bounds

of the claimed invention.

32.   **If the Applicant is of the opinion that an interview would help advance**

prosecution in this case, they are welcome to call the Examiner, Paul Masur, at

the number listed below to schedule an interview. The Examiner prefers interview

requests be accompanied with a detailed agenda via fax. The Examiner's fax number is

(571) 270-8297. The Examiner is willing to consider proposed amendments, clarify

rejections, and discuss any other issues that are presented by the Applicant. Please

note that the Examiner may not be able to accommodate all requests due to scheduling

constraints. It is recommended that interview requests be sent with ample time to

schedule an interview.

33.   **Any inquiry concerning this communication or earlier communications**

from the examiner should be directed to Paul Masur whose telephone number is

(571) 270-7297. The examiner can normally be reached on Monday through Friday from 7:00AM to 4:30PM (Eastern Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/　　　　　　　　　　　　　　　/P. M./
Supervisory Patent Examiner, Art Unit 2464　　　Examiner, Art Unit 2464